PRE-REHABILITATION PLAN
Big and Little Green Lakes

I. PROPOSAL

A. Justification for Proposed Rehabilitation

(1-2) In recent years both Green Lakes have suffered a decline in both the quality and quantity of the trout population. The illegal introduction of bluegill has created a serious problem of competition and predation that has effectively reduced survival of the fingerling trout plants. Rehabilitation would seem the best way to reduce the competition from illegal introductions as well as providing the necessary survival advantage for fingerling trout.

(3) Primary management of these waters is for trout only.

(4) Lake rehabilitation with rotenone was a successful management tool for Big and Little Green Lakes in 1990 and 2005.

B. Physical Description of Water Proposed for Rehabilitation

1. WATER: Big Green Lake
2. LOCATION: Sec 12-13, T34N R25E, Okanogan Co.
3. SURFACE ACRES: 49
4. MAX. DEPTH: 40
5. VOLUME: 882 acre feet 2,398,447,296 lbs water
6. OUTLET: Connection to Little Green Lake
7. STREAM: MILES N/A FLOW (cfs)
8. PUBLIC ACCESS: One day use site (WDFW) with launch
9. LAND OWNERSHIP: Public 80% Private 20%;
10. ESTABLISHED RESORTS: None

C. Proposed Management Actions

1. WATER: Big Green Lake
2. TARGET SPECIES: Bluegill
3. DATE LAST REHABED: October 12, 2005
4. PROPOSED TREATMENT DATE: Oct/Nov 2015
5. REPLANTING DATE: Summer/Fall 2016
6. SPECIES: Rainbow trout
7. STOCKING: 10,000 fingerling rainbow trout
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1 ppm
   AMOUNT (ROTENONE AT 5% ACT. INGRED): 2,398 lbs., 10 gal.
9. METHOD OF APPLICATION: pumper boats - slurry and spray; ATV with sprayer; small boat with small sprayer, backpack sprayers
10. CREW DESCRIPTION: Leader(s) Ryan Fortier, Personnel 6-8

B. Physical Description of Water Proposed for Rehabilitation

1. WATER: Little Green Lake
2. LOCATION: Sec 24, T34N R25E, Okanogan Co.
3. SURFACE ACRES: 9
4. MAX. DEPTH: 28
5. VOLUME: 108 acre feet 293,687,424 lbs water
6. OUTLET: None
7. STREAM: MILES N/A FLOW (cfs)

8. PUBLIC ACCESS: One day use site (WDFW)
9. LAND OWNERSHIP: Public 60% Private 40%;
10. ESTABLISHED RESORTS: None

C. Proposed Management Actions

1. WATER: Little Green Lake
2. TARGET SPECIES: bluegill
3. DATE LAST REHABED: October 12, 2005
4. PROPOSED TREATMENT DATE: Oct/Nov 2015
5. REPLANTING DATE: Summer/Fall 2016
6. SPECIES: Rainbow trout
7. STOCKING: 2,000 fingerling rainbow trout
8. PROPOSED TOXICANT: Rotenone, powder and liquid CONCENTRATION: 1 ppm
AMOUNT (ROTENONE AT 5% ACT. INGRED): 294 lbs., 5 gal.
9. METHOD OF APPLICATION: pumper boats - slurry and spray; ATV with sprayer; small boat with small sprayer, backpack sprayers
10. CREW DESCRIPTION: Leader(s) Ryan Fortier, personnel 6-8

II. PURPOSE:

Big and Little Green Lakes have been managed as a lowland lake trout waters since the 1950's. Complete rehabilitation is the only feasible method of restoring these waters to the trout type of management scheme. Complete removal of all competing species is the goal of the rehabilitation.

III. INTENDED OUTCOME/MEASURE OF SUCCESS:

We intend to restore Big and Little Green Lakes to its popular harvestable trout fishery, and improve its popularity by maintaining quality trout throughout the duration of the season. Success of this measure will be apparent during annual creel surveys. Given a reasonable chance of eliminating the populations of undesirable species, the beneficial effects should be noticeable one-two years post treatment.

IV. RESOURCE IMPACTS:

1. Target species: Bluegill

2. District and Regional Habitat, Wildlife and Non-Game biologists have been apprised of our rehabilitation plans. No objections were raised, and only cautionary concerns were expressed on the potential impacts to non-targeted species.

According to Bradbury (1986), the effects of rotenone on benthos are variable, depending on the concentrations and species. Crustaceans are most tolerant while the smaller insects are most affected. Immediate reduction of the population average 25%, and survival doubles when access to bottom sediments exists. Benthic communities generally recover to at least pretreatment levels within two months. Zooplankton is more severely impacted, and communities generally take two to twelve months to fully recover. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and herptiles are affected somewhat less so.

3. Participation in the trout fisheries should exceed that currently found for existing fisheries. The water in the lake is used solely for recreation. Dead fish along the shoreline may be offensive to the property owners for a short time after treatment.

4. Professional biologists and other naturalists have visited this site frequently over the past 50 years. Fingerling and larger rainbow trout will be planted in the lake in the early spring for the fishery as well as providing forage fish for any bird populations using the lake at that time.

V. MITIGATING FOR ADVERSE IMPACTS:

1. Trout survival and growth will be greatly enhanced. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake. Disturbance of waterfowl during treatment or by the anticipated fishery will be offset by increased food availability as the uncontrollable numbers of spiny-rayed fishes are eliminated in favor of easily balanced populations of trout. It is in the interest of all species being managed to refrain from over-taxing the food-base.

2. Water will be confined to the lake proper, since there is no outfall at this time of the year.

3. Fingerling and larger fish plants during the summer will provide the needed forage species for any bird populations that might be using the lake.

4. Protective gear for the eyes, face, hands and clothes will be supplied on-site for all purveyors of rotenone.

5. The lake will be posted according to Department of Ecology guidelines to notify the public of the treatment and discourage the public from possessing or consuming dead fish. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

VI. RECREATIONAL IMPACT: also see I.A., II and III

Recreational angling opportunity will be increased if the undesirable species are removed from Big and Little Green Lakes. The level of participation will dwindle to almost nothing if no action is taken immediately. Given the success of the planned management action, as many as 5,000 fishing days are estimated for the season. Anglers should average about four-five fish per trip if the treatment is successful. Yearling trout should average about 11 inches. Carryovers should be expected to be about 20 percent of the catch, and average 15 inches for 2-year-old fish.

VII. ECONOMIC IMPACTS:

Rehabilitation would restore the fishery and associated economic activity. An estimated 5,000 or more trips will be made to Big and Little Green Lakes as a result of the proposed management action, with an economic impact totaling $160,000 per year (2011 dollars; based on the U.S. Fish and Wildlife Service 2011 National Survey of Fishing, Hunting, and Wildlife-associated Recreation estimate of $32 per trip). Fingerling plants will cost the agency $840, but is far less than the $20,000 it will cost to produce the larger fish needed to counteract the presence of competing spiny ray species.

The cost of treatment will be approximately $5,000, but the increase in license sales and subsequent boost to the local economy will more than offset that loss within two years after treatment.

VIII. RELATED MANAGEMENT ACTION:

Approximately 12,000 fingerling rainbow trout will be stocked as soon as possible after the treatment to provide a winter fishery the following year. Creel checks will be done annually on Big and Little Green Lakes, as well as a population analysis to help in future management plans.

IX. PUBLIC CONTACT:

Public concern over the increasing numbers of lakes in Okanogan County with undesirable species infestations prompted this action.

Public meetings will be held at the Okanogan PUD Office on July 31, 2015 to discuss the proposed treatment of Big and Little Green Lakes. Other public meetings will be held in Cusick, Cheney and Olympia.

Initiated by: Region Two Fisheries Management